

**THE PRACTICAL SURVEYOR'S GUIDE:
CONTAINING THE NECESSARY
INFORMATION TO MAKE ANY
PERSON OF COMMON CAPACITY A
FINISHED LAND SURVEYOR, WITHOUT
THE AID OF A TEACHER**

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The Practical Surveyor's Guide: Containing the Necessary Information to Make Any Person of Common Capacity a Finished Land Surveyor, Without the Aid of a Teacher by Andrew Duncan

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ANDREW DUNCAN

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CONTAINING

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THE NECESSARY INFORMATION TO MAKE ANY PERSON OF
COMMON CAPACITY A FINISHED LAND SURVEYOR,
WITHOUT THE AID OF A TEACHER.

BY

ANDREW DUNCAN,
Land Surveyor and Civil Engineer.

A NEW, REVISED AND GREATLY ENLARGED EDITION.

ILLUSTRATED BY SEVENTY-TWO ENGRAVINGS.

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PREFACE TO THE REVISED EDITION.

AS shown by the constant demand for it, "THE PRACTICAL SURVEYOR'S GUIDE" still maintains the popularity and reputation it has, for so many years, enjoyed.

The issue of a new edition having become necessary, a considerable amount of new matter has been added in order to make the work still more useful to the reader. No changes, except necessary corrections, have been made in the original text.

The greater portion of the new matter has been translated from "Katechismns der Feldmesskunst," by Dr. C. Pietsch, a very popular German work which has passed through five editions. In making these additions, the aim of the author of the original work—to prepare a book sufficiently concise and instructive in the several details—has been constantly kept in view.

iv PREFACE TO THE REVISED EDITION.

It is hoped that this new edition may prove of value to surveyors, professional and unprofessional, in giving them the needed information in a clear and simple manner, unburdened with unnecessary matter.

Philadelphia, November 15, 1892.

PREFACE TO THE FIRST EDITION.

THE following compilation is made in consequence of the undersigned not having met with any work on Surveying sufficiently concise, and instructive in the several details necessary to qualify properly the practical surveyor. Many of the works already published contain subjects not necessary in such treatises; such as Geometry, Plane Trigonometry, &c., which subjects, it is taken for granted, all who intend to become proficient have studied prior to reading Surveying. They are also found not to contain instruction that in recent improvements the surveyor requires to know. Many of these things the compiler of this short treatise, will endeavour to supply; also, many other necessary things, which, in his long experience, he has found indispensable to the correct practitioner. He has collected the most necessary instruction in leveling and profiling, with a new and speedy plan of setting grades on rail and plank roads. The method of inflecting curves, not hitherto sufficiently explained. The description and design of a new instrument whereby distances are found at once without any calculation. A new method of surveying any tract of land by measuring one line through it, with a geometrical demonstration of the same. A geometrical method of correcting surveys taken with the Com-

pass, to fit them for calculation, with a table of corrections for certain distances, but applicable to all. A short method of finding the angles from the courses, and *vice versâ*. The method of surveying with the Compass through any mine or iron works, and to correct the deflections of the needle by attraction. Description of an instrument by the help of which any gentleman may measure a map by inspection, without calculation. A new and short method of calculation, wherein fewer figures are used than in the common method; also, the Pennsylvania method. Tables of difference of Latitude and Departure, made expressly for two pole chains, but which can also be used with four poles. The method of correcting the diurnal variation of the needle, most useful in tracing the boundaries of surveys, a complete description of which is given with the reason for using $57\text{-}3^\circ$ and how it is found. Various methods of plotting and embellishing maps. The most correct method of laying off lots with a pole, plummets, &c. Description of a new Compass which the compiler has contrived for that purpose, and which is made by REID & SONS, Smithfield street, Pittsburgh.

The compiler does not deny that he has borrowed from many authors those things he has found best adapted to the completion of a work adequate to make a finished American Surveyor, of which an unprejudiced and enlightened public are the best judges.

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